DIRECT TESTIMONY OF

STEPHEN A. BYRNE

ON BEHALF OF

SOUTH CAROLINA ELECTRIC & GAS COMPANY

DOCKET NO. 2015-103-E

Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS, AND POSITION.

A. My name is Stephen A. Byrne and my business address is 220 Operation Way, Cayce, South Carolina. I am President for Generation and Transmission of South Carolina Electric & Gas Company ("SCE&G" or the "Company").

Q. DESCRIBE YOUR EDUCATIONAL BACKGROUND AND BUSINESS EXPERIENCE.

A. I have a Chemical Engineering degree from Wayne State University. After graduation, I started my nuclear career working for the Toledo Edison Company at the Davis-Besse Nuclear Plant. I was granted a Senior Reactor Operator License by the Nuclear Regulatory Commission ("NRC") in 1987. From 1984 to 1995, I held the positions of Shift Technical Advisor, Control Room Supervisor, Shift Manager, Electrical Maintenance Superintendent, Instrument and Controls Maintenance Superintendent, and Operations Manager. I began working for SCE&G in 1995 as the Plant Manager at the V.C. Summer plant. Thereafter, I was promoted to Vice President and

Chief Nuclear Officer. In 2004, I was promoted to the position of Senior Vice President for Generation, Nuclear and Fossil Hydro. I was promoted to the position of Executive Vice President for Generation in 2008 and to Executive Vice President for Generation and Transmission in early 2011. I was promoted to President for Generation and Transmission and Chief Operating Officer of SCE&G in 2012.

Q. WHAT ARE YOUR DUTIES WITH SCE&G?

A. As President of Generation and Transmission and Chief Operating Officer for SCE&G, I am in charge of overseeing the generation and transmission of electricity for the Company. I also oversee all nuclear operations. Included in my area of responsibility is the New Nuclear Deployment ("NND") project in which Westinghouse Electric Company, LLC ("WEC") and Chicago Bridge & Iron ("CB&I") (collectively "WEC/CB&I") are constructing two Westinghouse AP1000 nuclear generating units in Jenkinsville, South Carolina, (the "Units") that are jointly owned by SCE&G and South Carolina Public Service Authority ("Santee Cooper").

Q. HAVE YOU EVER TESTIFIED BEFORE THIS COMMISSION?

A. Yes. I have testified before the Public Service Commission of South Carolina (the "Commission") in several past proceedings.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to discuss the current status of construction of the new nuclear Units; the new construction schedule proposed here which is based on the revised, fully-integrated construction schedule provided to SCE&G by WEC/CB&I in the third quarter of 2014 (the "Revised, Fully-Integrated Construction Schedule"); the changes in commercial operations dates for the Units; the updates in cost forecasts; and the operational, contractual and other matters related to the updates to the cost and construction schedules proposed in this proceeding. This testimony is also submitted in satisfaction of the requirement imposed by the Commission in Order 2009-104(A) that the Company provides annual status reports concerning its progress in constructing the Units.

PROJECT UPDATE

Q. PLEASE PROVIDE AN OVERVIEW OF THE PROJECT STATUS.

A. Concerning current status, the project is passing through an important time of transition related to the risks and challenges that will define our efforts going forward. When we began the project, the most important risks were related to first-of-a-kind nuclear construction activities. This project is one of two new nuclear construction projects to be initiated in the United States since the 1970s. It is being licensed by the NRC under an entirely new regulatory framework contained in 10 C.F.R. Part 52. In the early stages of the project, you would have expected risks to reflect that first-of-a-kind nature of the undertaking.

Today, we still face substantial risks and challenges in completing the project. But many of the uncertainties related to first-of-a-kind activities have been resolved or substantially mitigated. While unanticipated problems are always possible, the challenge of completing the Units is now shifting away from first-of-a-kind activities where major new design, performance, fabrication or regulatory challenges predominate. Today, execution risks related to construction, fabrication and acceptance testing are at the forefront. These tasks pose important challenges, and the challenges are commensurate in scale and complexity with the scale and complexity of this project. But qualitatively, these challenges are not that different from the challenges encountered in other major generation projects. It is a sign of the progression of the project that execution risks related to construction, fabrication and testing risks increasingly define the project rather than the first-of-a-kind nuclear project risks. Reaching this point represents an important milestone in our progress toward completion.

Q. COULD YOU PLEASE ELABORATE ON THE PROJECT'S RISKS AND CHALLENGES AS THEY CURRENTLY STAND?

A. Much of the change in the risk profile of the project has to do with the major risk factors that are being wholly or partially mitigated. For example, in the 2008 BLRA Combined Application, we identified 19 major permits, certifications or categories of permits that were required to construct the Units. *See* Combined Application in Docket No. 2008-196-E at Exhibit J, Chart B. Eighteen of the 19 have now been issued and one was determined not to be needed. Receipt of these permits represents the successful resolution of a major risk factor for this project.

Q. COULD YOU OUTLINE SOME OF THE KEY LICENSES, PERMITS AND CERTIFICATIONS THAT THE PROJECT HAS RECEIVED TO DATE?

A. Yes. We have now received:

1. The Combined Operating Licenses ("COLs") for the two Units that were issued by the NRC under 10 C.F.R. Part 52;

2. Amendments to the Design Control Documents ("DCDs") for the AP1000 Units through DCD Revision 19 that were approved by the NRC to incorporate design enhancements to the Units;

3. A Clean Water Act Section 404 permit that was issued by the Army Corps of Engineers related to work in on-site wetlands;

4. Several permits associated with use of Lake Monticello as a source of cooling water and potable water for the project that were issued by the Federal Energy Regulatory Commission ("FERC");

5. A Clean Water Act Section 401 Water Quality Certification and an Environmental Impact Statement issued under the National Environmental Policy Act ("NEPA") for the project, including associated transmission projects, to support other federal permits;

6. Multiple construction and storm-water permits that were issued by the South Carolina Department of Health and Environmental Control ("DHEC");

7. Several National Pollutant Discharge Elimination System ("NPDES") permits associated with the on-site waste water treatment plant and discharge of blow-down water from the Units' cooling system that were issued by DHEC; and

8. Certificates under the Utility Facility Siting and Environmental Protection Act that were issued by this Commission for the construction of 305 circuit miles of new or reconfigured 230 kV transmission lines to deliver power from the project to our customers.

Q. WHAT OTHER RISK FACTORS HAVE BEEN REDUCED OR AMELIORATED?

A. Let me review where we stand on several of the key risk factors including those that were identified when we came before the Commission in 2008 in the first BLRA proceeding.

1. **Financial Risk.** In 2008, we identified a key risk factor for the project to be uncertainties as to whether financial markets would support SCE&G in raising the capital needed to support construction. As Mr. Marsh's testimony demonstrates, SCE&G has successfully met this challenge thus far. The financial markets have developed confidence in the BLRA largely because ORS and the Commission have applied that statute

in a fair and consistent way. Because of that confidence, to date markets have been comfortable providing capital to the project on reasonable terms, even in times of generally unfavorable market conditions. However, as Kevin Marsh indicates, our May 2015 bond issuance indicates that markets appear to be more concerned about regulatory risk than they have been in the past. Nonetheless, we believe that if regulatory conditions remain stable and consistent, financial markets will continue to support the project through to completion.

2. **Major Equipment**. The design and fabrication of major equipment for the AP1000 Units was an important risk factor for the project when we began. As we stated in 2008:

> Quality controls and manufacturing standards for components for nuclear plants are very stringent and the processes involved may place unique demands on component manufacturers. It is possible that manufacturers of unique components (*e.g.*, steam generators and pump assemblies or other large components or modules used in the Units) and manufacturers of other sensitive components may encounter problems with their manufacturing processes or in meeting quality control standards. Many of the very largest components and forging used in the Units can only be produced at a limited number of foundries or other facilities worldwide. Any difficulties that these foundries or other facilities encounter in meeting fabrication schedules or quality standards may cause schedule or price issues for the Units.

Combined Application in Docket No. 2008-196-E at Exhibit J, page 7.

The first-of-a-kind risks associated with major equipment fabrication have now largely been mitigated. All of the major equipment for an AP1000 unit has been fabricated at least once and in some cases two or more times. More than a third of the major equipment for Unit 3, or five out of the thirteen components, have arrived on site. All of the major equipment for Unit 2 has been received on site except three of the thirteen components. In this regard,

a. The Passive Residual Heat Removal Heat Exchanger ("PRHR") while fabricated has been returned to Italy for installation of a Supplemental Restraint Bar to improve its performance and durability.

b. As of May 2015, the Reactor Coolant Pumps ("RCPs") for the AP1000 were successfully undergoing engineering and endurance testing with redesigned bearings. Previous endurance tests indicated a potential problem with the performance of the RCPs' bearings.

c. Squib Valves are important parts of the passive safety features of the AP1000 Units. Prior performance testing of the Squib Valves had shown problems with certain seals. Those seals have been redesigned and as of May 2015 the redesigned valves were undergoing testing and performing satisfactorily.

3. Shipping. The construction of the Units is supported by a global supply chain. Several ultra-large and ultra-heavy components of the Units are fabricated in Asia and Europe. In 2008, we identified important risks related to shipping these components safely and without delay to the site. To date, there have been no disruptions or losses due to shipping. The Deaerators, which were approximately 148 feet in length and weighed in excess of 300 tons, have been successfully delivered to the site. Delivery of this equipment was the project's most difficult and complex shipping challenge and was met without loss or delay, or any disruption to the construction plan. The Deaerators were shipped by sea to the Port of Charleston and then by barge to a Santee Cooper dock facility on Lake Marion. From there they were taken on special trailers to the site.

4. **Design Finalization.** Design finalization has been an important risk factor for the project since its inception. As we stated in 2008,

> Under the current NRC licensing approach, there is engineering work related to the Units that will not be completed until after the COL is issued. Any engineering or design changes that arise out of that work, or the engineering or design changes required to address problems that arise once construction is underway, are potential risks which could impact cost schedules and construction schedules for the Units.

Combined Application in Docket No. 2008-196-E at Exhibit J, page 6.

The most challenging aspect of design finalization of the AP1000 Units is finalization of the Nuclear Island ("NI"). The NI includes the Shield Building and containment vessel which house the reactor, steam-generators, refueling equipment and passive safety components of the Units, and the Auxiliary Building, which houses other nuclear components of the plant. Design delay and design changes related to the NI have been a major source of delay in the project to date and have contributed to delay in submodule production. As of May 2015, design finalization for the NI was approaching completion, indicating that risks associated with this aspect of the project are being mitigated.

A related development that has reduced risks due to design finalization has been the NRC's successful implementation of the Preliminary Amendment Request ("PAR") process. The License Amendment Request ("LAR") process, which has been in place for some time, allows SCE&G to obtain license amendments when needed to address changes in design documents. These changes arise from finalization of design, constructability issues identified in the field, and similar matters. Processing a certain number of LARs is a necessary and expected part of a construction project involving an NRC licensed facility.

The PAR process was developed less than five years ago to support new nuclear construction. A PAR requires the NRC staff to issue a "notice of no objection" and allows construction work to proceed at the applicant's risk pending issuance of a LAR. We have used the PAR process in several cases to mitigate potential delay in the project. The NRC's successful implementation of the PAR process has been very helpful in mitigating design finalization risk.

5. **Hiring, Training and Retention of Operating Staff.** Another very important risk factor that has been highlighted since the

beginning of the project was the possible “[i]nability [of SCE&G] to hire sufficient qualified people to operate the plants.” *See* Combined Application, Docket No. 2008-196-E, at Exhibit J, Chart A. Without a sufficient team of licensed operators and other staff to operate the Units, initial fuel load would be prohibited and the project would come to a halt. To support initial fuel load, the team must be large enough to staff all necessary positions at the Units around the clock seven days a week with provisions for training and development time and personal and sick leave. Each Unit requires no less than three Senior Reactor Operators (“SROs”) and two Reactor Operators (“ROs”) to be on duty at all times. Training as a licensed reactor operator takes between 3-7 years depending on the level of nuclear experience that the candidate brings to the job. Because the AP1000 is a new design, there is no pool of trained and licensed AP1000 reactor operators and other personnel potentially available to fill gaps in SCE&G’s ranks.

As the Commission is aware from past proceedings, SCE&G’s concerns about this staffing issue grew as the project progressed and concerns about the difficulty in finding qualified candidates for training as reactor operators and other skilled positions came into focus. With support from the Commission and ORS, SCE&G redoubled its efforts and expanded its hiring targets to allow for greater rates of attrition. *See* Order 2012-884 at pp. 47-48. We currently have a group of 60 well-qualified licensed reactor operator candidates in training and a similarly sufficient number of candidates in training for other technical positions. Training is proceeding well and to date retention has been good. As things stand today, the risk factor related to hiring the staff for the Units when constructed has largely been mitigated. As described below, risk factors remain related to completing the licensing of our staff and maintaining our current retention rates.

6. **Hiring, Training and Retention of Construction Labor.** Another significant risk factor which was recognized when the project began is that WEC/CB&I might potentially be unable to recruit, train and retain a sufficient work force to support construction activities on-site. As we reported to the Commission in 2008, "staffing risks for the Units include both the possible shortage of required workers, which could impact both schedule and cost, and the risk that bidding for the available work force will raise labor costs to levels higher than anticipated." Combined Application in Docket No. 2008-196-E at Exhibit J, page 9. A construction work force of approximately 3,500 WEC/CB&I and subcontractor personnel have been recruited, hired and trained and is working on site. To date, the contractors have been able to staff the project, but we continue to monitor the effect of an improving economy, and increasing labor demand on their ability to do so.

7. **Site Conditions.** Every construction site has the potential to conceal soil, rock, hydrological or other conditions that can impede or halt construction. Discovering and dealing with those conditions is an important part of the initial stage of any construction project. The construction project for the Units is now past this site discovery stage. Excavation, grading, mapping of subsurface rock, and other site preparation work are complete for the nuclear Units. The most significant issue that came to light in this work was related to a depression in the bedrock underlying Unit 2. It was resolved with the installation of concrete fill. As we stand today, site discovery risk has largely been resolved.

8. **Transmission.** The design, routing and permitting of transmission facilities was another important risk factor in the early stages of the project. As the Commission is aware, the siting plan and schedule for constructing the transmission assets required to support the Units was disrupted when the Corps of Engineers, at the insistence of the Environmental Protection Agency, decided to change its position related to the acceptability of assessing potential transmission-related environmental impacts based on a macro-corridor approach. *See* Order No. 2012-884 at 40-41.

In response to this challenge, SCE&G accelerated the siting of transmission by placing all but approximately 6 miles of transmission lines in or adjacent to existing rights of way. As of May 2015, all necessary transmission lines and off-site substations have now been sited and either are completed or are under construction. In addition, the new Unit 2 & 3 switchyard located on the site has been completed and energized. At present, transmission related risk factors are largely resolved.

9. **Fukushima** – In 2008, SCE&G disclosed that

> events that are hypothetical and difficult to predict could result in a change in the current level of political, legislative, regulatory and public support for nuclear generation in particular or for the Units specifically. Such a change could in turn result in additional costs, delays, and difficulty in receiving permits, licenses or approvals for the Units and could possibly place the cost and schedules of the Units in jeopardy. While such events are difficult to predict or envision, any event that casts doubt on the continued safety and reliability of nuclear power . . . could result in such a reversal.

Combined Application, Docket No. 2008-196-E, at Exhibit J, pp.5-6.

On March 11, 2011, a 9.0 magnitude earthquake occurred off the eastern coast of Japan. The epicenter of the earthquake was 112 miles from Tokyo Electric Power Company's Fukushima Daiichi Nuclear Power Station. The earthquake was the largest Japan has ever experienced and caused all of the operating units at the Fukushima Daiichi Nuclear Power Station (Fukushima Units 1, 2, and 3) to automatically scram on seismic reactor protection system trips.

After the earthquake, the first of a series of seven tsunamis arrived at the site. The maximum tsunami height that impacted the site was estimated to be 46 to 49 feet. This exceeded the design basis tsunami height and inundated the area surrounding Fukushima Units 1-4 to a depth of 13 to 16 feet above grade, causing extensive damage to site buildings and flooding of the turbine and reactor buildings. Despite their best efforts, the operators lost the ability to cool the Fukushima Units resulting in damage to the nuclear fuel shortly after the loss of cooling capabilities.

The Fukushima event was the realization of the sort of major disaster risk that was disclosed in 2008. Fukushima could easily have soured public support for nuclear power, delaying and complicating SCE&G's ability to complete the Units.

However, the feared reaction did not occur. President Obama quickly went to the public. He committed his administration, through the NRC, to conduct a comprehensive review of the safety of U.S. nuclear units in light of the disaster. He promised that lessons learned would be identified and applied. Through President Obama's leadership the United States avoided a "knee-jerk" reaction to halt nuclear construction or to close nuclear plants as some proposed.

The location and seismic profile of the Jenkinsville site and the more modern design standards and passive safety features of the AP1000 unit make a disaster on the scale of Fukushima extremely remote for SCE&G's project. Nonetheless, the NRC's review of the Fukushima event has resulted in important improvements in the resources, procedures and safety plans for U.S. nuclear reactors. Some of the increased costs experienced in this project since 2011 are a direct result of the application of lessons learned through Fukushima. However, the feared result from such an event, a wholesale loss of public, political and regulatory support for nuclear power, never materialized. This risk factor was triggered but overcome.

10. **Summary.** Risks will remain as to all of these items. They will not disappear until construction of the Units or the applicable components of them are complete and they have been inspected, tested and placed into service. Nonetheless, the nature and extent of risks associated with these items has been greatly mitigated by the progress made on the project to date.

In this regard, one important fact reducing risks is that construction of the first AP1000 reactor at the Sanmen site in China is largely complete physically. That reactor is undergoing flushing and purging in preparation for hydrostatic testing. SCE&G continues to benefit from lessons learned in the Chinese construction project. In fact, Westinghouse personnel participating in the startup of the Chinese reactors are scheduled to participate in the start-up of our Units. The risk profile of our project has changed significantly since the project began. Startup of the Chinese unit will provide an important opportunity to identify any yet undisclosed risks.

In the United States, TVA is also approaching the completion of the

Watts Bar 2 nuclear plant in Tennessee. Construction on Watts Bar Units 1 and 2 began in 1973. Construction on Unit 2 was suspended in 1988 when it was approximately 80% complete, but was resumed in 2007. Watts Bar Unit 2 will be the last of the pre-AP1000 Westinghouse units to be completed. Through cooperation with TVA we have gained valuable information about the practical issues involved in system turnovers and pre-operational testing. Several of our start-up engineers plan to assist in TVA's start-up activities at Watts Bar to gain information in this area.

Q. WHAT DO YOU CONSIDER TO BE THE MOST IMPORTANT CHALLENGES THAT THE PROJECT FACES GOING FORWARD?

A. As I indicated earlier, the project seems to be moving past first-of-a-kind activities and major design, performance or fabrication challenges to the challenge of executing construction, fabrication and acceptance testing tasks. I do not mean in any way to minimize the importance of these remaining challenges. The project continues to be highly complex with thousands of interdependent tasks and multiple opportunities for problems and delay, even where contractors and subcontractors use great skill and care. In my opinion, the major challenges appear today to be as follows:

1. **Enforcing the EPC Contract while Maintaining a Working Relationship with WEC/CB&I.** It is a critical necessity for the

project that we effectively enforce the EPC Contract for the benefit of the customers of SCE&G and Santee Cooper. But effectively managing a project of this scope and complexity also requires a close working relationship between the owners and the contractor. This leads to an important challenge, that of maintaining an effective working relationship with WEC/CB&I in spite of mounting commercial disputes over the rights of the parties under the EPC Contract. Striking the proper balance between these two potentially conflicting requirements is a challenge now and will be an increasing challenge going forward. Failure in either direction could be a risk to the project. This effort is complicated by the high level of turnover in WEC/CB&I project management. The senior on-site project managers have resigned, or have been replaced several times since the project began. This turnover has made establishing and maintaining effective working relationships a challenge.

2. **Maintaining Financial Community Support Through a Predictable Regulatory Environment for the Project.** As discussed above, the financial community has demonstrated its willingness to fund the project even in adverse market conditions. However, this willingness depends on the continuation of predictable regulatory environment for the project such as ORS and this Commission have established to date. If the financial community were to lose its confidence in the predictability of regulatory treatment for this project, the Company could lose the ability to

raise the funds needed to complete it on reasonable terms, if at all. This is a very important risk factor for the project going forward.

3. **Modules and Submodules.** The use of modular construction for nuclear units was new to the commercial nuclear industry in the United States with these projects. In 2008, SCE&G identified risks associated with this production technique as an important risk factor for the project. *See* Combined Application in Docket No. 2008-196-E at Exhibit J, p.7.

> [T]he construction of the Units will employ standardized designs and advanced modular construction processes. The project schedules are based on efficiency anticipated from the use of these techniques. . . . Standardized design and advanced modular construction has not been used to build a nuclear unit in the United States to date. The construction process and schedule is subject to the risk that the benefits from standardized designs and advanced modular construction may not prove to be as great as expected.

See Combined Application in Docket No. 2008-196-E at Exhibit J, p.8.

Experience has shown that to be the case. Delay in production of modules, submodules and Shield Building panels has been a major source of delay for the project. This remains a key focus area for concern going forward.

However, there are indications that problems in this area are lessening. Three of the six major structural modules for Unit 2 (CA04, CA05, and CA20) have now been fabricated and set in place. The fabrication of a fourth (CA01) is physically complete. All submodules for a fifth (CA02) are on site. Submodules for the sixth module (CA03) are being received. There are one hundred and sixty-seven (167) Shield Building cylinder panels for each Unit. As of May 2015, more than sixty-eight (68) Unit 2 and six (6) Unit 3 Shield Building cylinder panels had been received on site and initial welding of the first ring of them had begun. However, module and submodule production remains a major challenge for the project.

4. **Shield Building Air Inlet and Tension Ring.** Among the last items of the NI design to be finalized is the design for the Shield Building Air Inlet and Tension Ring. These are design features at the top of the vertical walls of the Shield Building and are the most complicated sets of Shield Building panels to be fabricated.

Delay in design finalization for these items has resulted in delay in finalizing their procurement. WEC/CB&I assures SCE&G that these panels can be fabricated and delivered to site on schedule. Nonetheless, Shield Building construction is currently a critical path item for the project. This means that a delay in fabricating the Shield Building Air Inlet or Tension Ring panels could delay completion of the project. SCE&G is monitoring this area closely.

5. **Productivity Factors.** Construction companies like WEC/CB&I base their construction plans on data they compile indicating the expected amount of labor required to complete specific construction tasks. One measure of productivity is the ratio between the amount of labor

actually required to perform a particular task, and the amount of labor anticipated to be required, the so called productivity factor, or PF. Higher PFs indicate more labor hours were required than expected.

In compiling a construction plan and budget, the design and engineering documents are reviewed to determine the amount or volume of commodities that need to be installed. The appropriate expected productivity labor factor is applied to each item. Doing so determines the amount of labor required for each scope of work. The amount of labor which is calculated in this way determines both the cost of construction and the schedule for construction.

For various reasons, to date WEC/CB&I has not met the overall PF on which its original cost estimates were based. In preparing the Revised, Fully-Integrated Construction Schedule, WEC/CB&I forecasted an increase its PF across the board. (The higher the rate indicates more hours required for a task). SCE&G has not accepted responsibility to pay for this increased labor. Unfavorable productivity factors have been a matter of frank and direct discussion between the parties, and WEC/CB&I's senior leadership has recognized the need to improve in this area. In justifying their confidence in the revised rate on which the current construction schedule is based, WEC/CB&I points to things like reduced delay in submodule production, increasing levels of design finalization, and lessons learned from construction of the first AP1000 unit in China. They also point to the increasing adaptation by the project's work-force to the requirements of nuclear construction. They further reference the assumption that productivity for Unit 3 will improve due to the experience gained in completing similar scopes of work on Unit 2.

SCE&G fully supports WEC/CB&I in its efforts to improve labor productivity and will continue to monitor WEC/CB&I's performance and demand improvement. But the possibility that WEC/CB&I will fail to meet current productivity assumptions for the project represents an important risk to both the cost forecasts and the construction schedule for the project

6. **Testing and Start Up.** In 2008, the NRC's implementation of its new regulatory approach to licensing nuclear units was seen as a major risk factor for the projects. Previously, the NRC issued a permit to begin nuclear construction at the beginning of a project. It only issued a license to operate the unit after construction was complete and comprehensive post-construction testing was done. Under the new approach, which is contained in 10 C.F.R. Part 52, the NRC now issues a single license to build and operate a new nuclear unit. This happens at the start of the construction process. Construction takes place under an active nuclear operating license with all of the regulatory oversight that this entails.

As construction proceeds, and before a new unit is placed in commercial service, the licensee is required to complete a specified regimen of Inspections, Tests, Analyses and Acceptance Criteria ("ITAACs"). Successfully completing those ITAACs to the satisfaction of the NRC demonstrates that a new unit has been built in conformity with the design documents and the COL and will perform as designed. This ITAAC process is entirely new to the industry as of the current projects. There are 873 ITAACs that must be completed for each Unit, or 1,746 for the project.

Uncertainties about how ITAACs would be administered was an important risk factor that SCE&G identified in 2008: "[T]he NRC is still developing the process for approving the results of ITAAC tests once they are completed and for resolving disputes or other issues related to the results of those tests." Combined Application, Docket No. 2008-196-E, at Exhibit J, page 4. The NRC has now issued regulatory guidance resolving some of the outstanding issues concerning the review of ITAAC Closure Notification ("ICN") packages. *See* Guidance for ITAAC Closure, 80 Fed. Reg. 265 (January 2, 2015). However, there are still important issues to be resolved, such as how a hearing will be conducted if ITAAC results are challenged. Furthermore, the sheer number of ITAACs to be completed poses a challenge to the schedule for the substantial completion of the Units.

As of late May 2015, SCE&G has successfully completed 22 ITAAC packages and has submitted 20 ICN packages to the NRC. While the ITAAC process seems to be working satisfactorily at present, completing the required ITAAC program on schedule remains an important risk factor for the project.

7. **Failure to Obtain NRC Certification of the Full Scope Simulator.** Plant simulators are computer systems designed to model the response of a generating plant to changing operating conditions and operator inputs. They are used for operator training and testing and to support plant operations. Certification of a simulator by the NRC as a Plant Reference Simulator ("PRS") allows that simulator to be used to support an operating nuclear unit and for all training purposes. Successful Integrated Systems Validation ("ISV") testing is necessary for the NRC to approve a plant simulator to serve as a PRS.

During the first quarter of 2015, WEC conducted the required ISV testing on the Unit 2 and 3 plant simulators. As of May 2015, SCE&G and WEC are evaluating the results. If the NRC accepts ISV testing as sufficient, the documentation supporting certification of the simulators as PRS could be completed by the end of 2015.

This approval schedule will not permit certification of the Unit 2 and 3 PRSs in time for them to be used in conducting the integrated operator simulator exams for the first class of candidates seeking licensing as Reactor Operators ("ROs") and Senior Reactor Operators ("SROs"). That exam was scheduled to be offered in May 2015. The schedule also may not support testing for the second class of candidates. Their exams are scheduled for November 2015.

In response, WEC and SCE&G have requested the NRC to approve the simulators as Commission-Approved Simulators ("CASs") under the process specified in 10 C.F.R. 55.46(b). However, it is not clear that the NRC will grant CAS approval. The NRC has also indicated that approval of the simulator as a PRS could be delayed until Instrumentation and Control ("I&C") systems for the Units are installed and ITAAC testing is completed. If the NRC takes this position, and denies CAS certification for the simulator, the training and licensing schedule for ROs and SROs candidates might not support initial fuel load for the Units.

8. **Retaining Operating Staff in the Face of Delay.** Delay in completing the Units can cause morale problems among the SROs, ROs and other operating staff that are being trained to operate the Units. These individuals' opportunities for advancement and job satisfaction are often related to operating experience. Delaying the start of the Units postpones the time when operating experience becomes available. A risk factor for the project at present is that morale problems due to delay could increase attrition in these areas.

9. **Instrumentation and Controls Acceptance Testing**. While several existing nuclear units have been retrofitted with digital Instrumentation and Control ("I&C") systems, the AP1000 is the first United

States reactor to be designed with a site-wide integrated digital I&C system as original equipment. To address testing and commissioning of the new integrated I&C system, WEC has developed a Digital Test Strategy ("DTS") to demonstrate the AP1000 integrated I&C system compliance with design requirements and regulatory commitments. While informal feedback from the NRC has generally been positive, formal acceptance of the DTS by the NRC has not been received. If the NRC does not concur with the DTS and requires that hardware and software testing be delayed until installation is complete, that testing could result in a delay in the scheduled completion of the Units.

<u>CURRENT CONSTRUCTION STATUS</u>

Q. DO YOU HAVE PHOTOGRAPHS OR SLIDES THAT ILLUSTRATE THE STATUS OF CONSTRUCTION AND FABRICATION ACTIVITIES RELATED TO THE UNITS?

A. Yes. Those slides are attached to my testimony as Exhibit No. __ (SAB-1). Let me now review those slides with the Commission and the parties.

Q. HOW MANY PEOPLE ARE CURRENTLY EMPLOYED AT THE JENKINSVILLE SITE?

A. As of March of 2015, of the approximately 3,500 construction personnel working at the site, 57% were South Carolina residents. An additional approximately 560 SCANA, SCE&G and Santee Cooper employees are working full time on the project.

Q. WHAT IS THE PROJECT SAFETY RECORD?

A. SCE&G and WEC/CB&I are very proud of the current safety record at the site. As of May 2015, the project has logged over 25 million man hours on the site with only a minimal number of lost time accidents. This is remarkable testimony to the care and professionalism with which all parties are approaching work on these Units with respect to safety.

COST CATEGORIES FOR THE PROJECT

Q. PLEASE DESCRIBE HOW THE VARIOUS COSTS ASSOCIATED WITH THE UNITS ARE CATEGORIZED.

A. In Order No. 2009-104(A), the Commission reviewed and approved SCE&G's estimate of forecasted costs for the Units as shown in nine cost categories. Seven of these cost categories reflected costs agreed to in the EPC Contract. Four of those seven involve categories of fixed cost, which do not change, or firm costs which change only based on specified inflation indices ("Fixed/Firm Costs"). Two of the seven EPC categories involve costs where WEC/CB&I operates under established budgetary targets and SCE&G pays actual costs as incurred ("Target Costs"). The seventh is Time and Materials ("T&M") which are costs for allowances requiring pre-approval by SCE&G for things like start-up support, scaffolding, and licensing support. The final two cost categories are Transmission costs and

Owner's cost. These are activities that SCE&G undertakes directly and are outside of the scope of work of the EPC Contract with WEC/CB&I.

- Transmission cost includes the cost of the transmission facilities that SCE&G will build to integrate the Units into its transmission grid. It does not include the on-site switchyard which is part of the EPC Contract scope.
- Owner's cost include the costs of the NND teams and associated labor costs, and involve such things as site-specific licensing and permitting of the Units and their construction; regulatory costs such as NRC fees; insurance, including workers compensation insurance for all workers on site, builder's risk insurance and transportation risk insurance; construction oversight and contract administration costs; the costs of recruiting and training of operating personnel for the Units; the costs of overseeing the final acceptance testing of the Units and providing for interim maintenance of components of the Units as completed; the cost of NND facilities, information technology systems and equipment to support the project and the permanent staff of the Units; sales taxes, and other incidental costs for the site.

OWNER'S COST AND THE NND PROJECT

Q. WHAT IS THE COMPANY'S PHILOSOPHY CONCERNING THE NND PROJECT?

A. As I have mentioned in past testimony, apart from ensuring the safety of our public and the people, the Company has no greater priority than getting the deployment of the new nuclear Units right. Senior leadership, including our CEO Mr. Marsh, is directly involved in the management of this project and of escalation of issues to WEC/CB&I on a regular basis.

On the day to day operations level, the Company has put in place a team of people that are capable of interfacing with the NRC, overseeing the work of thousands of on-site contractors and subcontractors, a worldwide supply chain for highly specialized components and equipment, and the transportation and logistics required to bring those components and equipment safely together in Jenkinsville. All this must be done while recruiting and training a permanent staff that can operate and maintain the Units safely and efficiently when they go into service, and that can successfully conduct the acceptance testing that the NRC requires before the Units are put into commercial operation. This effort also requires SCE&G to keep in place a team of people who can ensure that the contractual aspects of the project are prudently managed, that the terms of the EPC Contract are enforced, and that we do all in our power to ensure that costs are controlled.

Q. DO YOU TAKE COST CONTROL SERIOUSLY?

A. We take cost control very seriously. Senior leadership for the project takes an active role in reviewing budgets, setting up systems, and engaging staff appropriately to ensure that only reasonable, necessary and prudent costs are included in the cost forecasts. As Company Witness Walker testifies in detail, our cost and staffing reviews are thorough and demanding. We will not jeopardize the safety or quality of the project, but by the same token, we will not tolerate unnecessary spending.

Q. UNDER THE EPC CONTRACT, WHAT ROLE DOES SCE&G PLAY IN THE LICENSING AND PERMITTING OF THE UNITS?

A. Apart from the Design Control Document for the AP1000, which WEC as owner of the technology was responsible to obtain, SCE&G is responsible for obtaining the major licenses and permits that are required to construct and operate the Units. SCE&G is responsible for procuring all LARs required by the project. Also, during construction and testing of the Units, SCE&G must ensure that it and its contractors comply with all terms and conditions of these licenses and permits.

Q. HOW DOES THE NRC SEE SCE&G'S CURRENT RESPONSIBILITIES AS OWNER AND LICENSE HOLDER?

A. Since March 30, 2012, SCE&G has been managing the project under active NRC nuclear construction and operation licenses, i.e., COLs, issued in SCE&G's and Santee Cooper's names. As the NRC is quick to remind us, the Company is now directly responsible to the NRC for the safety of the Units as constructed and for QA/QC both on-site and in the shops and factories where components are being fabricated worldwide.

Q. WHAT IS SCE&G'S PHILOSOPHY ABOUT DEPLOYING THE RESOURCES REQUIRED TO MEET THESE CHALLENGES?

A. These Units will serve as a critical component of our generation portfolio for decades. They are expected to serve the needs of our customers for 60 years or more. With those facts in mind, SCE&G is committed to continuously monitoring the needs of the project and to adjust its staffing, training and resource plans whenever it concludes that doing so is necessary to protect the interests of the Company and its customers in this project.

Q. WHAT GROUP WITHIN SCE&G IS RESPONSIBLE FOR CARRYING OUT THE TASKS YOU HAVE DESCRIBED?

A. The NND teams have direct responsibility for the project. They are supported by resources from throughout SCE&G and SCANA. But the primary responsibility for the success of the project rests with the NND teams.

Q. HOW HAS SCE&G STRUCTURED THE NND TEAMS?

A. The NND teams are comprised of eight groups which include Nuclear Licensing, Design Engineering, Organizational Development and Performance ("OD&P"), Quality Systems, Construction, Business and Finance, Operational Readiness and Training. Other groups that share resources with Unit 1 are Health Physics, Emergency Planning, Chemistry, and Security Services. In all cases, where resources are shared between units, there are strict accounting rules in place to ensure that each unit bears its full share of cost that benefit it.

In March 2015, the staffing of the NND teams was approximately 560 SCANA, SCE&G and Santee Cooper employees. The permanent staffing for the two Units is expected to be approximately 761 individuals (excluding security contractors). Many of the members of the NND teams will transition to permanent operating staff of the Units, although there will be some retirements and other attrition. The structure of the NND teams and the responsibilities of the eight areas that comprise them are discussed in Mr. Jones' testimony and exhibits.

Q. WHAT IS THE EXPERIENCE LEVEL OF THE LEADERS OF THESE TEAMS?

A. The members of the senior leadership team for the NND effort have an average of more than 35 years of experience in nuclear and major generating plant construction. All told, the seven senior leaders for the NND project represent 252 years of nuclear and major construction experience.

Q. WHAT PART OF THE COSTS INCLUDED IN THESE UPDATES ARE OWNER'S COSTS?

A. As Ms. Walker testifies, updates in Owner's cost forecasts represent $245 million[1] of the $698 million that we are presenting here for BLRA approval. These costs are the reasonable and prudent costs of fulfilling our responsibilities as the owner of this project.

Q. WHAT IS DRIVING THESE OWNER'S COST INCREASES?

A. As Mr. Jones and Ms. Walker testify in more detail, the majority of these Owner's cost increases are a result of the delay in the substantial completion dates of the Units. This delay will require SCE&G to support the project and the NND teams for 27 additional months as to Unit 2 and 25 additional months as to Unit 3. These delay related costs represent $214 million, or approximately 87% of the increase in Owner's costs. The other $31 million represents increases in personnel costs, facilities costs, software and systems costs and other expenses that must be incurred for SCE&G to meet its obligations as Owner and COL licensee in a reasonable and prudent way.

Q. DO YOU HAVE AN OPINION CONCERNING THE REASONABLENESS AND PRUDENCE OF THE ADJUSTMENTS TO THE STAFFING LEVELS AND COST SCHEDULES FOR THE NND PROJECT THAT THE COMPANY IS PRESENTING HERE?

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[1] Unless otherwise specified, all cost figures in this testimony are stated in 2007 dollars and reflect SCE&G's share of the cost of the Units.

A. For the reasons set forth in this testimony, as well as those set forth in Mr. Jones' testimony and Ms. Walker's testimony, it is my opinion that the adjustments in the forecasts of Owner's cost for the NND project are reasonable and prudent costs of the Units. These costs reflect a prudent and valuable investment that the Company is making to protect the interest of its customers in these long-lived assets, as well as those of our partner Santee Cooper, in the project.

<u>THE REVISED PROJECT SCHEDULE AND COST SCHEDULE</u>

Q. PLEASE PROVIDE THE BACKGROUND FOR THE REVISED PROJECT SCHEDULE THAT IS PRESENTED IN THIS PROCEEDING.

A. Beginning in 2010, and consistently thereafter, SCE&G publicized its concerns about the inability of the module fabrication facility in Lake Charles, Louisiana, to produce submodules for the project in a timely-way. Initially, that Lake Charles facility was operated by Shaw Modular Solutions ("SMS"), a subsidiary of the Shaw Group, which was WEC's original partner in the construction consortium. As the Company has testified in past proceedings, and has been reported to ORS and the Commission regularly over this period, the Company, along with Southern Company, the other AP1000 owner, worked diligently to convince WEC and Shaw to make required changes.

In March 2012, SCE&G placed a permanent on-site inspector at the SMS facility. An inspector has been on site since. On multiple occasions during the period 2009-2012, at SCE&G's direction, SMS re-baselined its initial module fabrication and delivery schedule to account for its rate of production. But SMS was never able to prepare a schedule that reasonably reflected the effect of on-going delay.

In July 2012, CB&I announced its intention to acquire the Shaw Group. After that sale closed, in February 2013, SCE&G requested that WEC/CB&I produce a revised construction schedule that included a realistic and achievable production for submodules from the Lake Charles facility (now known as CB&I-LC), and a plan for completing the project in light of the submodule production delay. During this time, SCE&G urged WEC/CB&I to resolve its submodule production issues, and specifically to relieve the congestion issues that were impeding progress at its Lake Charles facility. In response, WEC/CB&I asked SCE&G for space to relocate certain aspects of submodule production from Lake Charles to designated work areas at the Jenkinsville site. This relieved some of the congestion at the Lake Charles facility and allows work crews to be hired in South Carolina to supplement those on site in Louisiana. CB&I also proposed to diversify it supply chain by outsourcing production of certain submodules to other fabricators. As a result, important aspects of the submodule fabrication for Units 2 and 3 were assigned to other fabricators, including Oregon Iron Works in Oregon and IHI/Toshiba in Japan.

In late May 2013, SCE&G received a revised construction schedule from WEC/CB&I that sought to take into account the effects of production delay at the Lake Charles facility. SCE&G challenged important aspects of this schedule. WEC/CB&I agreed to conduct a thorough review of the schedule in light of delay to date, and to include is a full review of the engineering, procurement and construction resources necessary to support the plan.

In the third quarter of 2014, SCE&G received what WEC/CB&I termed a Revised, Fully-Integrated, Construction Schedule. Accompanying the construction schedule data was information related to the revised cost estimates for completing the project, the Estimated at Completion ("EAC") costs. SCE&G spent a number of months reviewing the schedule and cost information with WEC/CB&I and in negotiations with WEC/CB&I concerning costs and schedule mitigation to accelerate the substantial completion dates of the Units.

Based on those reviews and negotiations, SCE&G determined in March of 2015 that the cost and construction schedules as updated by WEC/CB&I through that time were in fact the anticipated schedules for completion of the project as envisioned by the BLRA. As Mr. Marsh testifies, Senior leadership approved those schedules, with updates as to

Owner's costs and other cost items, as the basis for the filings presently before the Commission.

The Revised, Fully-Integrated Construction Schedule, is the mitigated construction schedule for the Units as it was revised and finalized during the review process.

Q. WHAT DO YOU MEAN BY A MITIGATED CONSTRUCTION SCHEDULE?

A. There a number of ways to mitigate a construction schedule. One of the more common is to add additional shifts of labor. Another is to reallocate fabrication activities to multiple vendors, as we have done with sub-modules going forward. Another is to change the method or sequence of construction activities so that delayed components do not hold up other specific tasks. For example, if delivery of a module is delayed, concrete forms can be used to allow concrete to be placed that would otherwise have been poured directly against the module wall. In many cases, schedule mitigation means additional expense, and that additional expense can become a matter of negotiation between the owner and contractor.

Q. PLEASE DESCRIBE EXHIBIT NO. _ (SAB 2).

A. Exhibit No. _ (SAB-2) is the Milestone Construction schedule based on the Revised, Fully-Integrated Construction Schedule, which we proposed for Commission approval as the current anticipated construction schedule for the Units as envisioned by the BLRA.

Q. ARE THE SCHEDULES PRESENTED HERE REASONABLE AND PRUDENT SCHEDULES FOR COMPLETION OF THE PROJECT?

A. The schedules that SCE&G has presented here are the current anticipated schedules for completing the Units as envisioned by the BLRA and are reasonable and prudent schedules for completing the project. They should be approved as the new BLRA schedules for the Units.

These schedules represent the best current forecasts of the anticipated costs and the anticipated construction schedules to complete the project. They are based on the cost projections and construction schedule data that WEC/CB&I has provided to SCE&G and which SCE&G has carefully studied and reviewed consistent with its duties as Owner. The construction schedule is based on a comprehensive identification and sequencing of the tens of thousands of construction activities that must be accomplished for the project to be completed. The cost schedule is based on identifying labor and other costs that must be incurred to complete the scopes of work listed on those schedules.

SCE&G's construction experts have reviewed the schedules presented here. We find that their scope and sequencing is logical and appropriate. As to both timing and cost, the schedules are based on productivity factors that WEC/CB&I represents can be met given the current status of the project. Meeting these productivity factors will pose a challenge to WEC/CB&I. But doing so will benefit the project both in terms of cost and schedule. For that reason, as owner SCE&G has no basis or interest in insisting that WEC/CB&I should use less challenging assumptions. However, SCE&G does recognize that WEC/CB&I has set itself a significant challenge as to future productivity.

The schedules presented here are the schedules that WEC/CB&I has represented to SCE&G that it is prepared to meet and that SCE&G has carefully reviewed with WEC/CB&I. For those reasons, I can affirm that these schedules represent the best and most definitive forecast of the anticipated costs and construction schedule required to complete this project that is available as of the date of this filing of the testimony. These updated costs are not in any way the result of imprudent management of the project by SCE&G. Further, these costs do not include speculative or un-itemized costs, such as owner's contingencies. *S.C. Energy Users Comm. v. S.C. Pub. Serv. Comm'n*, 388 S.C. 486, 697 S.E.2d 587 (2010). While additional costs may be incurred after the date of this filing of the petition in this proceeding, those costs are not known at present and so cannot be included here.

Q. COULD THESE SCHEDULES CHANGE?

A. These schedules can and almost certainly will change. That is because the construction schedule for any project as complex as this one will be dynamic. It can be expected to vary from month to month during the construction period as conditions change. The construction and cost forecasts will be subject to ongoing change and revision, as any forecast would be.

<u>OVERVIEW OF INCREASE IN FORECASTED EPC CONTRACT COSTS</u>

Q. PLEASE PROVIDE AN OVERVIEW OF THE INCREASE IN THE EPC CONTRACT COST FORECASTS SCE&G IS PRESENTING IN THIS PROCEEDING.

A. This total increase of $698 million is made up of (1) changes in the Estimated at Completion ("EAC") cost under the EPC Contract, (2) ten additional change orders to the EPC Contract, (3) reallocation of certain on-site transmission costs between SCE&G and Santee Cooper, and (4) changes in Owner's cost. Company witnesses Mr. Jones and Mrs. Walker will address these items in detail in their pre-filed direct testimony in this matter. I am familiar with the matters they discuss and can confirm the accuracy of their testimony. I also affirm that cost and construction schedules presented here accurately reflect the anticipated cost and schedule for completion of the Units and in no way are the result of any imprudence on the part of SCE&G.

<u>DISPUTED COSTS</u>

Q. YOU MENTIONED EARLIER THAT SCE&G IS NOT RELEASING OR WAIVING ANY CLAIMS AGAINST WEC/CB&I. PLEASE EXPLAIN WHAT COSTS YOU ARE CHALLENGING.

A. At present, SCE&G is challenging several categories of costs being billed to it by WEC/CB&I. Those challenges include:

1. Costs invoiced by WEC/CB&I where the costs are increased costs related to fixed or firm items where SCE&G has entered into an agreement with WEC/CB&I to resolve claims for a fixed amount of compensation. For example, WEC/CB&I has attempted to bill SCE&G for module rework. Modules are a fixed cost item. SCE&G has returned the invoices for such charges as improper since additional costs associated with these items are a WEC/CB&I responsibility.
2. Cost invoiced by WEC/CB&I which are related to general project delay. SCE&G takes the position that these delay costs are WEC/CB&I payment responsibility for reasons including WEC/CB&I failure to meet its responsibilities under the EPC Contract to effectively manage the project.
3. Cost invoiced by WEC/CB&I which are the result of WEC/CB&I not meeting productivity factors. SCE&G believes that WEC/CB&I is under a contractual obligation to efficiently conduct its construction activities, and some or all of any labor costs based on failure to meet productivity factors is WEC/CB&I's payment responsibility.

As to invoices for costs which are 100% unjustified, SCE&G believes it is contractually entitled to return the invoices as improperly issued and pay nothing. This is permissible under provisions of the EPC Contract that only require SCE&G to pay for properly invoiced items.

As to invoiced costs where only part of any given invoiced amount would be subject to dispute, SCE&G will withhold part of the payment. Under the EPC Contract, SCE&G is required to pay at least 90% of the disputed amount pending resolution of its dispute. Other provisions of the EPC Contract permit WEC/CB&I to cease work and treat the project as if it had been suspended at SCE&G's request if 90% payments are contractually required but are not made after proper invoicing. WEC/CB&I has reserved its rights under these provisions to cease work on the site if required payments are not made.

As to delay costs, the revised cost forecast associated with the Revised, Fully-Integrated Construction Schedule shows the amount by which overall project costs have increased due to delay through the end of the project. A percentage of increased cost due to delay has been computed for each cost category under the EPC Contract where delay has increased costs. Since May 5, 2015, SCE&G has applied that percentage to the charges in each invoice and only paid 90% of the disputed amount as the EPC Contract provides.

As to productivity factors costs, SCE&G will determine on a case by case basis the amount of additional charges that is due to inefficiency and from this amount, SCE&G will withhold 10%.

Q. WHY ARE DISPUTED AMOUNTS PROPERLY INCLUDED IN THE COST SCHEDULES PRESENTED HERE?

A. The BLRA requires SCE&G to present the anticipated cost to complete the project. SCE&G in no way disputes the fact that the project will incur the amount presented here to complete the Units. The question is who is required to absorb these additional and disputed costs. SCE&G intends to pursue its dispute of these certain costs, and going forward will pay only 90% of those costs pending resolution of those disputes. When SCE&G pays those 90% amounts, they will become paid capital costs of the project and will be reflected in CWIP for the project. For that reason, these 90% payments are properly included in the cost projections for the Units.

At present, the outcome of the disputes with WEC/CB&I is not known. Therefore, SCE&G does not have any basis to forecast any additional costs or cost reductions beyond the 90% payments it knows it must make. We have only included in this filing non-speculative, itemized costs which are costs that SCE&G fully anticipates paying. Revised rates only reflect costs actually paid. If for any reason, certain costs are not paid, they will not be booked as capital costs of the Units, and will not be used for calculating revised rates or for any other ratemaking purposes. Any future reductions in the anticipated cost presented here due to resolution of claims against WEC/CB&I or other reasons are also not known, are unquantifiable, and therefore are not properly included in the current BLRA cost projections for the project.

Q. HOW WILL THESE DISPUTES BE RESOLVED?

A. SCE&G is committed to resolving these disputes by negotiation if possible. However, litigation may occur. The venue specified in the EPC Contract is the Southern District of New York. If litigation occurs, there is no way to determine how long it would take to resolve the disputes. While the amounts in dispute are important, SCE&G and its customers have a primary interest in seeing the Units completed in a timely, safe and efficient manner. This is particularly important since if Unit 3 is not placed in service before January 1, 2021, SCE&G and its customers could lose the value of federal Production Tax Credits associated with that Unit. The value of those credits, grossed up for tax, could equal approximately $1.1 billion. That is one important reason to maintain focus on the goal of the project and not let disputes interfere with completing the project in a timely way. The overarching goal is to ensure that the project is completed in a safe and timely fashion.

Q. HOW DO YOU RESPOND TO THE CLAIM THAT INCLUDING THE 90% PAYMENTS IN BLRA COSTS TAKES AWAY SCE&G'S INCENTIVE TO REACH A FAIR SETTLEMENT OF CLAIMS AGAINST WEC/CB&I?

A. There are multiple reasons that this is not the case.

1. SCE&G seeks to include the 90% payments in its BLRA cost schedule because they will in fact be part of the capital outlays for this project. SCE&G hopes that it will recover all or part of those payments from the WEC/CB&I. But this recovery is not guaranteed. As a result, we are in no different position than in cases where we complete a plant or project, and once it is closed to rate base, we pursue warranty or contractual claims against suppliers. Those claims, if successful, lower the cost of the plant or project after the fact. This happens in the ordinary course of our business.

2. Further, to withhold these payments from the capital costs recognized under the BLRA would do the opposite of what the question implies. Rather than creating an incentive for SCE&G to aggressively and doggedly pursue the claims against WEC/CB&I, it would create an incentive for SCE&G to settle claims quickly so that the settlement amounts could be included in BLRA filings. Mr. Marsh has testified that it is critical to our financial plan that we generate cash returns through revised rates filing on the capital we spend on this project. If the only way to

include disputed costs in revised rates is to settle the underlying dispute, then SCE&G will be put under financial pressure to settle as quickly as possible. That fact would not be lost on WEC/CB&I and would likely change their bargaining position in settlement negotiations.

Q. WHAT WILL HAPPEN IF SCE&G DOES RECOVER PART OF THE DISPUTED AMOUNTS THAT IT HAS PAID?

A. If through negotiation or litigation, SCE&G recovers any past payments to WEC/CB&I or reduces any current payments, those amounts will be reflected as reductions to the accounts where the capital cost of the project are recorded. This will reduce the financing costs to be charged to customers and the reduction will be reflected in lower revised rates in subsequent revised rates proceedings going forward.

CONCLUSION

Q. ARE THE UPDATES REQUESTED IN THIS PROCEEDING REASONABLE AND PRUDENT?

A. Yes they are. As President for Generation and Transmission, I am involved on an on-going basis with all major aspects of the construction project and am directly involved in the negotiations with WEC/CB&I over the issues discussed here. The adjustments requested in this proceeding include adjustments to the construction schedule as well as to EPC costs and Owner's cost. They are adjustments that I know to represent reasonable and prudent changes in the cost and construction schedules for the Units. Making these adjustments is necessary to create the anticipated cost and construction schedules for the Units as required by the BLRA. Based on my knowledge of the project, and in my professional opinion, the adjustments are in no way the result of any lack of responsible and prudent management of the project by the Company or of imprudence by the Company in any respect. I ask the Commission to approve these adjustments as presented in the exhibits to Mrs. Walker's testimony.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes, it does.